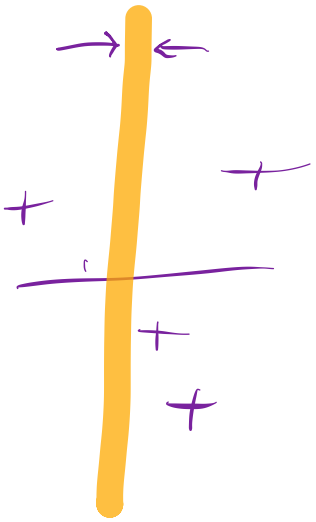
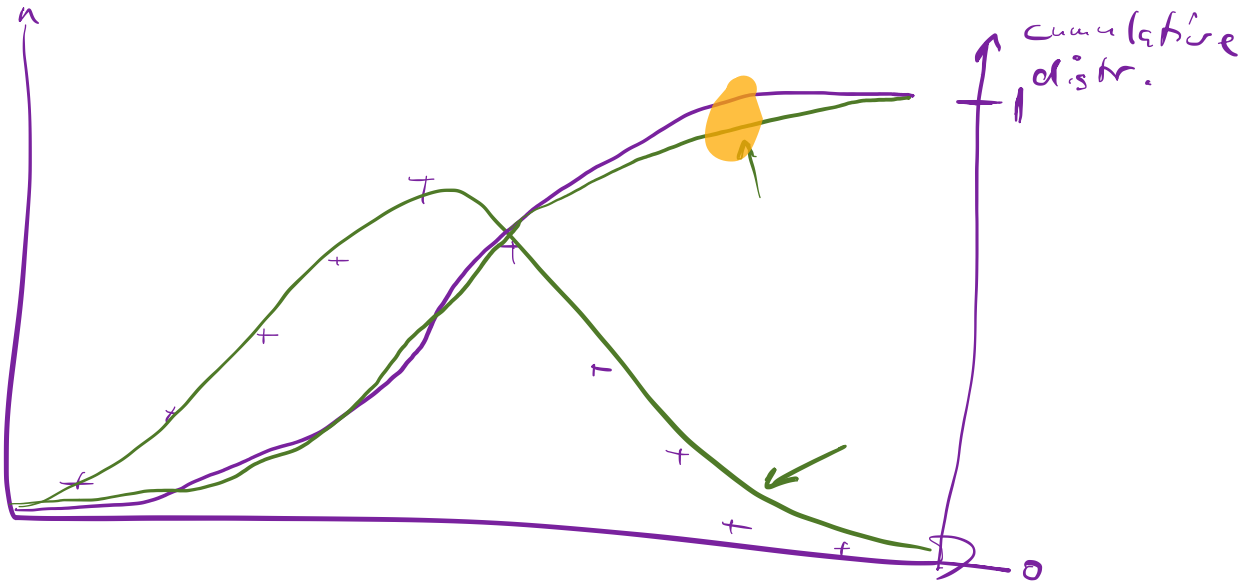
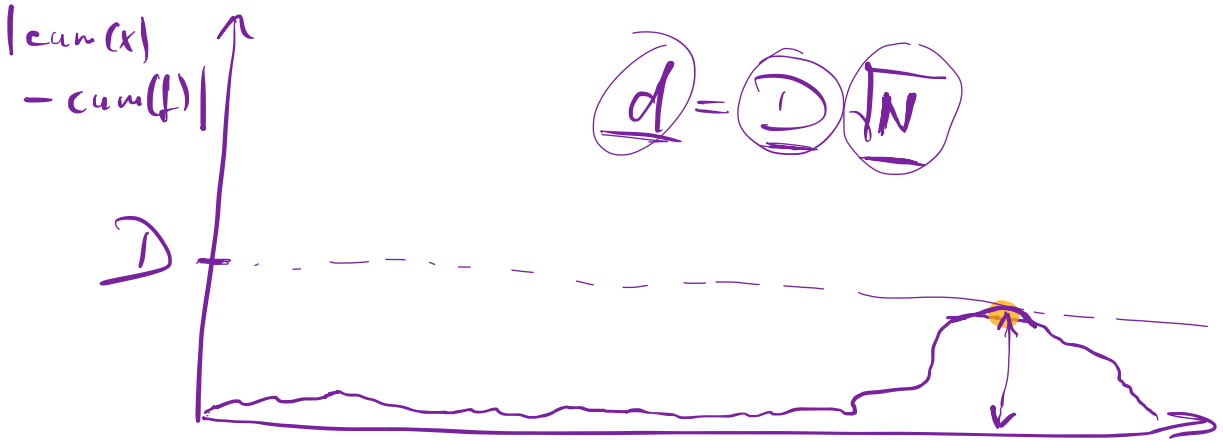
Week 11



Kolmogorov Smirnov Test





$$d = D\sqrt{N}$$

11.2 The issue of flip-flopping

Combining different approaches

As a remedy one might decide to combine these approaches, for example according to the following recipe:

- For a measured value above 3σ we quote a central interval.
- For a less significant value we quote an upper limit.
- For a negative measured value we quote a constant upper limit, the same as for $x_0 = 0$.

Do you think that this is a useful and statistically sound approach?

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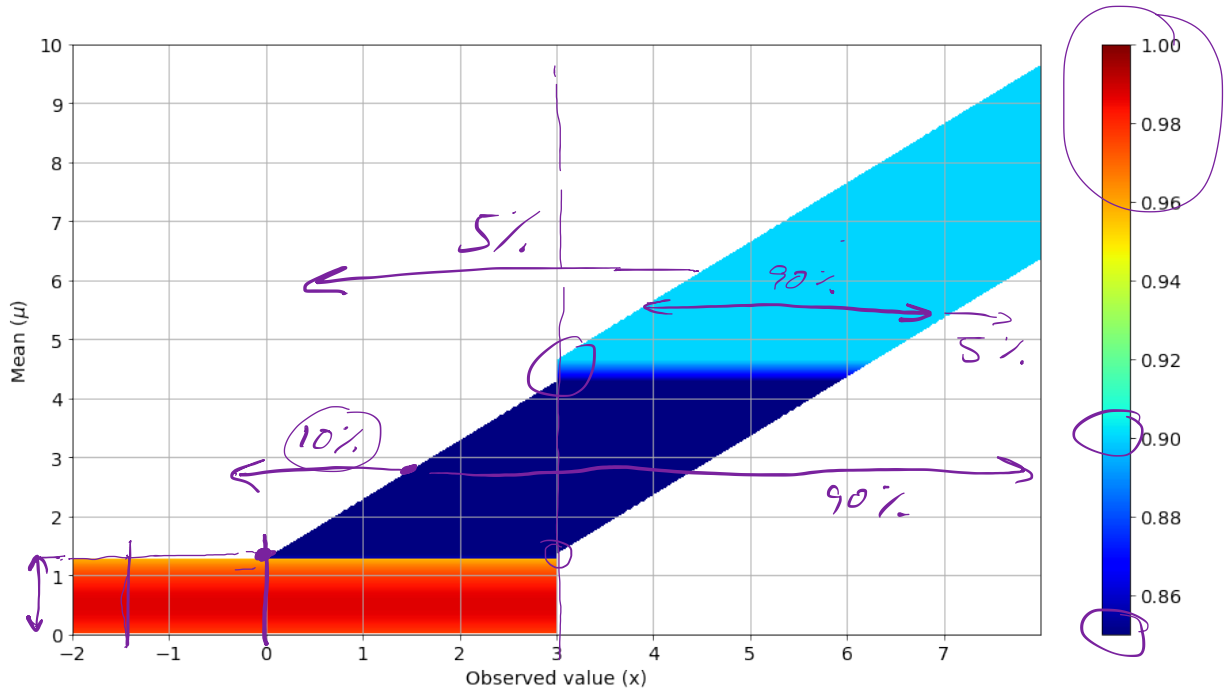

Flip-flopping

You should have received sufficient warnings about fully defining your procedure prior to performing the measurement that this measurement-dependent recipe should set off some alarm bells.

Let's have a look at the coverage of this approach.

For $\mu = 2$ the coverage is too low as the right-hand limit is defined by the central interval belt, which appears to be shifted up compared to the upper limit belt. Therefore, the intervals undercover, which is problematic.

Also, considering $\mu = 1$, it is apparent that the intervals overcover. More generally, for μ between 0 and about 1.2 the coverage obviously varies as the interval stays constant while $P(x|\mu)$ changes.